PATENT ABSTRACTS OF JAPAN

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(54) CULTURE TANK

(57)Abstract:

PURPOSE: To inexpensively provide a culture tank having ready handleability because of lightness and flexibility.

CONSTITUTION: A main body of a culture tank to be charged with a culture solution L consists of a bag 10 made of a flexible synthetic resin capable of standing high temperature and high pressure of vapor sterilization. A top open part 10a of the culture bag 10 is put on a fitting part 11a of a cover 11 and the fitting part 11a is fastened with a detachable band 12 and hermetically fixed. The cover 11 is held on supporting legs 13 and the culture bag 10 is suspended. The cover 11 is equipped with a stirring tool 3, a porous ventilating pipe 4 and a through hole 11b for inserting a dissolved oxygen detecting sensor 5 into the culture bag 10. Since the culture bag 10 has lightness and flexibility, the culture

bag can be folded and stored during nonuse and is not readily damaged by physical impact and is conveniently handled. Facilities for sterilization are sufficiently of small size. A culture bag made of a synthetic resin on the market can be widely applied to the culture bag 10.

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2.**** shows the word which can not be translated.

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CLAIMS

[Claim(s)]

[Claim 1] The cultivation tank characterized by providing the lid for closing the open section of the culture bag which can consist of the flexible quality of the material, and can hold culture medium in the interior, and a culture bag removable, and the supporter material which **** a culture bag.

[Claim 2] The cultivation tank according to claim 1 with which said lid is supported by the upper part of said supporter material, and the up disconnection section of said culture bag is characterized by being stopped by the lid free [attachment and detachment].

[Claim 3] Said lid is a cultivation tank according to claim 1 characterized by having the through tube for introducing many equipments connected into said culture bag.

[Claim 4] The up disconnection section of said culture bag is a cultivation tank according to claim 1 characterized by equipping the perimeter of a lid airtightly.

[Claim 5] Said culture bag is a cultivation tank according to claim 1 characterized by being the quality of the material which can bear the elevated-temperature high pressure of autoclave sterilization processing.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the cultivation tank for carrying out liquid culture of a microorganism, the animals and plants, etc.

[0002]

[Description of the Prior Art] The lid 2 has fitted into the glassware 1 of transparence with which the conventional cultivation tank holds culture medium L as shown in drawing 2 airtightly. The stirring implement 3, the spiral porosity vent pipe 4, the dissolved oxygen detection sensor 5, etc. are inserted in the lid 2, and an environmental condition required for culture of an oxygen density etc. can be adjusted now to it. In addition, as a conventional cultivation tank, the thing using metal containers, such as plastics or stainless steel, is known.

[0003]

[Problem(s) to be Solved by the Invention] If each above-mentioned conventional cultivation tank will become comparatively expensive because of processing of a container and becomes large-sized, the volume and weight also become large and its handling is inconvenient. although autoclave sterilization of the container is carried out with an autoclave before culture, if a container carries out large-sized Oshige quantification -- a sterilization facility -- a large size -- strong ---izing -- it does not obtain but there is a problem of needing big facility equipment. Then, since this invention is lightweight and elastic, handling makes it the technical problem to offer an easy cultivation tank cheaply.

[0004]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, this invention consisted of the flexible quality of the material, and constituted the cultivation tank from supporter material 13 which **** the lid 11 and the culture bag 10 for closing open section 10a of the culture bag 10 which can hold culture medium L in the interior, and the culture bag 10 removable. In this cultivation tank, the lid 11 was supported in the upper part of the supporter material 13, and up disconnection section 10a of the culture bag 10 was stopped free [attachment and detachment] to the lid 11. Through tube 11b for introducing many equipments connected to a lid 11 into the culture bag 10 was prepared. The perimeter of a lid 11 was airtightly equipped with up disconnection section 10a of the culture bag 10. It constituted from the quality of the material which can bear the elevated-temperature high pressure of autoclave sterilization processing of the culture bag 10.

[0005]

[Function] Since the culture bag 10 is flexible, the cultivation tank of this invention can be folded up and is easy handling in respect of conveyance, storage, etc. It can carry out, where it removed the sterilization processing before culture from the lid 11 and the culture bag 10 is shrunk especially. In this case, as compared with the capacity of the culture bag 10, a quite small sterilization processing facility is sufficient. The culture bag 10 can apply the thing made of commercial synthetic resin widely, and according to the class of culture medium L, it is chosen suitably, and is exchanged and it uses it. Exchange of the culture bag 10 is easy.

[0006]

[Example] The example of this invention is explained about a drawing. In drawing 1 R> 1, 10 is the culture bag which held the culture medium L including a culture object. The culture bag 10 is the product made from vinyl of transparence with a thickness of 0.5mm which can bear the elevated-temperature high pressure of wet sterilization. Therefore, it has foldable flexibility. Open section 10a of the upper part of the culture bag 10 is stopped by the lid 11. A lid 11 is a disc-like

stainless steel plate. The shape of a short cylinder was accomplished in the inferior surface of tongue of a lid 11, and it is equipped with attachment section 11a which has a collar at the edge. The culture bag 10 puts open section 10a on the outside of attachment section 11a, in a band 12, is airtightly fastened between a collar and a disk inferior surface of tongue, and is stopped between. The lid 11 is equipped with through tube 11b for inserting the stirring implement 3, the porosity vent pipe 4, and the dissolved oxygen detection sensor 5 into the culture bag 10. A band 12 can be detached and attached freely. The lid 11 is supported in the edge by the support saddle 13 which is supporter material. The upper part of a support saddle 13 fixes a lid 11, and is making the culture bag 10 hang inside.

[0007] In this cultivation tank, the culture bag 10 is airtightly attached in a lid 11 by putting open section 10a of the culture bag 10 on the outside of attachment section 11a of a lid 11, and binding tight in a band 12. If it removes, folds up and places from a lid 11 at the time of un-using it, a storage space will not be taken, since it is lightweight and flexible, even if the physical impact by fall etc. is added, it does not damage easily in itself, and the culture bag 10 does not damage other objects. Therefore, it is convenient handling in respect of conveyance, storage, etc. Moreover, if round-off ****** is carried out where the culture bag 10 is removed from a lid 11, autoclave sterilization of the plurality can be carried out at once also with comparatively small autoclave equipment. Thus, since what is necessary is just to pour in the culture medium L which carried out filtration sterilization independently after equipping with the culture bag 10 which carried out sterilization processing and assembling a cultivation tank, processing is easy. The culture bag 10 can apply the thing made of commercial synthetic resin widely, can change it suitably according to the class of culture medium L, and is simple for the exchange in that case.

[0008]

[Effect of the Invention] As mentioned above, the culture bag 10 which this invention can consist of the flexible quality of the material, and can hold culture

medium L in the interior, Since the cultivation tank was constituted from supporter material 13 which **** the lid 11 and the culture bag 10 for closing open section 10a of the culture bag 10 removable, Since a culture bag is elasticity material, even if capacity is large, it can fold up and set at the time of un-using it, and weight is also light and convenient handling in respect of storage, conveyance, etc. Especially, a comparatively small facility can also perform sterilization processing before culture easily. Since a culture bag can apply the thing made of commercial synthetic resin widely, it has the effectiveness that it can provide cheaply.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing of longitudinal section of the cultivation tank concerning this invention.

[Drawing 2] It is drawing of longitudinal section of the conventional cultivation tank.

[Description of Notations]

3 Stirring Implement

4 Porosity Vent Pipe

5 Dissolved Gas Detection Equipment

10 Culture Bag

10a The open section

11 Lid

11b Through tube

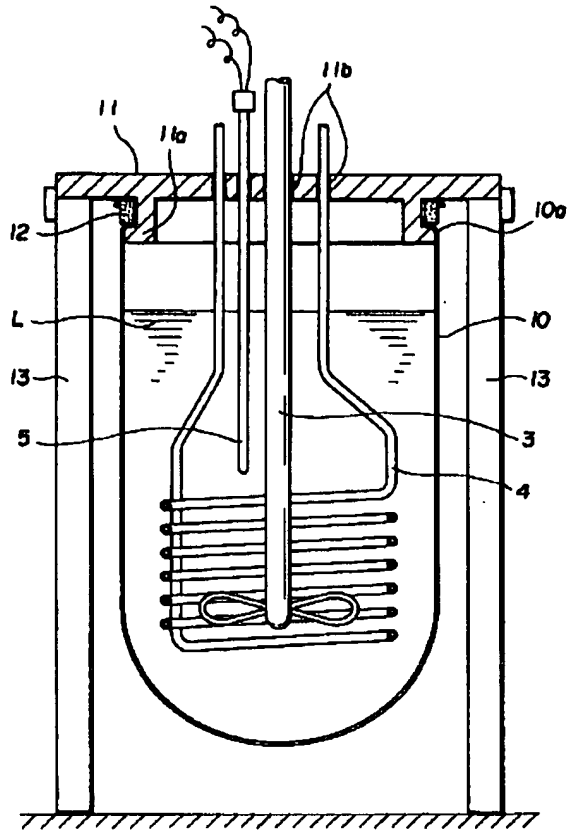
13 Supporter Material

L Culture medium

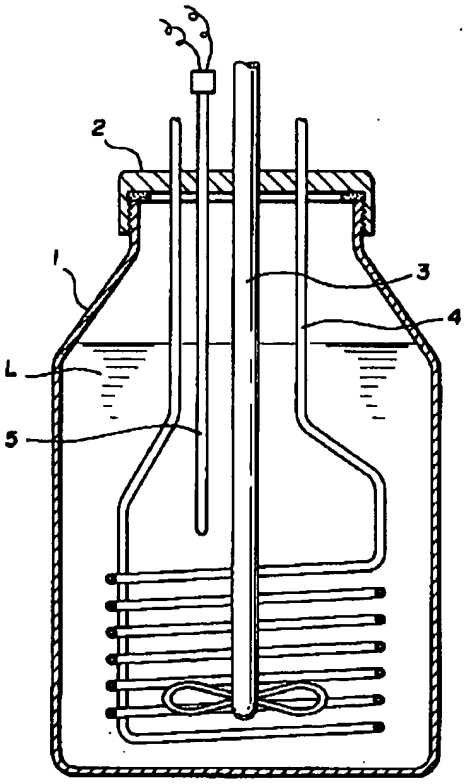
[Translation done.]

DRAWINGS

[Drawing 1]



[Drawing 2]



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(51)Int.Cl.[5]		識別記号	庁内整理番号	Ｆ Ｉ	技術表示箇所
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	3/00	Ｚ			

審査請求　未請求　請求項の数５(全　３　頁)

(21)出願番号　特願平4－333643

(22)出願日　平成４年(1992)11月19日

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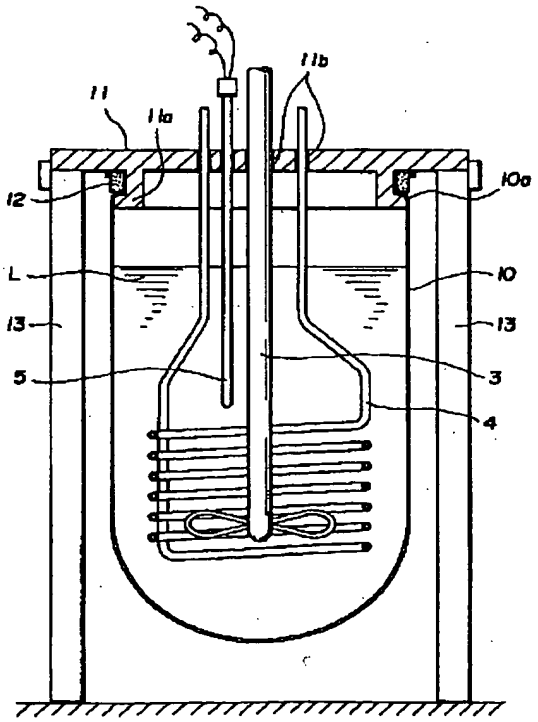
(54)【発明の名称】　培養槽

(57)【要約】

【目的】　軽量で伸縮自在であるために取扱いが容易な培養槽を安価に提供すること。

【構成】　培養液Ｌを収容する培養槽本体を、蒸気滅菌の高温高圧に耐え得る柔軟な合成樹脂製の袋１０で構成する。この培養袋１０の上部の開放部１０ａを、蓋体１１の取付部１１ａにかぶせ、取付部１１ａを着脱自在のバンド１２で締め付けて気密に止める。この蓋体１１を支持脚１３で支持して、培養袋１０を吊り下げる。蓋体１１には攪拌具３、多孔質通気管４、溶存酸素検出センサ５を蓋袋１０内へ挿入するための貫通孔１１ｂを設ける。培養袋１０は軽量で柔軟であるから、不使用時に折り畳んで保管することができ、また物理的衝撃により容易に破損することがなく、取扱いに便利である。滅菌処理の設備装置が小型のもので足りる。培養袋１０は市販の合成樹脂製のものを広く適用することができる。



【特許請求の範囲】
【請求項１】　柔軟な材質から成り、内部に培養液を収容することができる培養袋と、培養袋の開放部を着脱可能に閉鎖するための蓋体と、培養袋を吊支する支持部材とを具備することを特徴とする培養槽。
【請求項２】　前記蓋体が前記支持部材の上部に支持され、前記培養袋の上部開放部が蓋体に着脱自在に係止されていることを特徴とする請求項１に記載の培養槽。
【請求項３】　前記蓋体は、前記培養袋内へ接続される諸装置を導入するための貫通孔を備えていることを特徴とする請求項１に記載の培養槽。
【請求項４】　前記培養袋の上部開放部は、蓋体の周囲に気密に装着されることを特徴とする請求項１に記載の培養槽。
【請求項５】　前記培養袋は、高圧蒸気滅菌処理の高温高圧に耐えることができる材質であることを特徴とする請求項１に記載の培養槽。
【発明の詳細な説明】
【０００１】
【産業上の利用分野】本発明は、微生物、動植物等を液体培養するための培養槽に関するものである。
【０００２】
【従来の技術】従来の培養槽は、図２に示すように、培養液Ｌを収容する透明のガラス容器１に、蓋体２が気密に嵌合している。蓋体２には、例えば攪拌具３、螺旋状の多孔質通気管４、溶存酸素検出センサ５などが差し込まれており、酸素濃度等の培養に必要な環境条件を調整することができるようになっている。その他従来の培養槽としては、プラスチックあるいはステンレススチール等の金属製の容器を用いたものが知られている。
【０００３】
【発明が解決しようとする課題】上記従来の培養槽は、何れも容器の加工のために比較的高価になってしまうし、大型になると体積や重量も大きくなって取扱いが不便である。培養前に、容器をオートクレーブにて高圧蒸気滅菌するが、容器が大型大重量化すれば、滅菌設備も大型、堅牢化せざるを得ず、大きな設備装置を必要とするという問題がある。そこで、本発明は、軽量で伸縮自在であるために取扱いが容易な培養槽を安価に提供することを課題としている。
【０００４】
【課題を解決するための手段】上記課題を解決するため、本発明は、柔軟な材質から成り、内部に培養液Ｌを収容することができる培養袋Ｉ０と、培養袋１０の開放部１０ａを着脱可能に閉鎖するための蓋体１１と、培養袋１０を吊支する支持部材１３とから培養槽を構成した。この培養槽において、蓋体１１を支持部材１３の上部に支持し、培養袋１０の上部開放部１０ａを蓋体１１に着脱自在に係止した。蓋体１１に、培養袋１０内へ接続される諸装置を導入するための貫通孔１１ｂを設けた。培養袋１０の上部開放部１０ａを、蓋体１１の周囲に気密に装着した。培養袋１０を、高圧蒸気滅菌処理の高温高圧に耐えることができる材質で構成した。
【０００５】
【作用】本発明の培養槽は、培養袋１０が柔軟であるから、折り畳むことができ、運搬、保管などの面で取扱いが容易である。特に、培養前の滅菌処理を、培養袋１０を蓋体１１から取り外して収縮させた状態で行うことができる。この場合には、培養袋１０の容量に比してかなり小さな滅菌処理設備で足りる。培養袋１０は市販の合成樹脂製のものを広く適用することができ、培養液Ｌの種類に応じて適宜選択し、取り替え使用する。培養袋１０の取り替えは簡単である。
【０００６】
【実施例】本発明の実施例を図面について説明する。図１において、１０は培養体を含む培養液Ｌを収容した培養袋である。培養袋１０は蒸気滅菌の高温高圧に耐え得る厚さ０．５㎜の透明のビニル製である。従って、折り畳みが可能な柔軟性を有する。培養袋１０の上部の開放部１０ａは蓋体１１に係止されている。蓋体１１は、円盤状のステンレススチール板である。蓋体１１の下面には、短円筒状を成し、端部に鍔を有する取付部１１ａを備えている。培養袋１０は取付部１１ａの外側に開放部１０ａをかぶせて鍔と円盤下面との間にバンド１２にて気密に締め止められる。蓋体１１は、攪拌具３、多孔質通気管４、溶存酸素検出センサ５を培養袋１０内に挿入するための貫通孔１１ｂを備えている。バンド１２は着脱自在である。蓋体１１はその縁部を支持部材である支持脚１３で支持されている。支持脚１３の上部は蓋体１１を固定して、培養袋１０を内部に垂下せしめている。
【０００７】この培養槽においては、培養袋１０の開放部１０ａを蓋体１１の取付部１１ａの外側にかぶせてバンド１２で締め付けることにより培養袋１０を蓋体１１に気密に取り付ける。培養袋１０は、不使用時に蓋体１１から外して折り畳んで置けば保管スペースを取らないし、軽量で、柔軟であるから、落下等による物理的衝撃が加わってもそれ自身容易に破損することがなく、また他の物を破損させたりすることもない。従って、運搬、保管などの面で取扱いに便利である。また、培養袋１０を蓋体１１から取り外した状態でまるめて収縮させれば、比較的小さなオートクレーブ装置でも複数を一度に高圧蒸気滅菌することができる。このように滅菌処理した培養袋１０を装着して、培養槽を組み立てた後に、別に濾過滅菌した培養液Ｌを注入すればよいから、処理が簡単である。培養袋１０は市販の合成樹脂製のものを広く適用することができ、培養液Ｌの種類に応じて適宜変更することができ、その際の取り替えが簡単である。
【０００８】
【発明の効果】以上のように、本発明は、柔軟な材質から成り、内部に培養液Ｌを収容することができる培養袋

１０と、培養袋１０の開放部１０ａを着脱可能に閉鎖するための蓋体１１と、培養袋１０を吊支する支持部材１３とから培養槽を構成したため、培養袋が軟質材であるから、容量が大きくても不使用時に折り畳んでおけるし、重量も軽く、保管、運搬等の面で取扱いに便利である。特に、培養前の滅菌処理も比較的小さな設備で簡単に行うことができる。培養袋は市販の合成樹脂製のものを広く適用することができるから、安価に提供することができるという効果を有する。

【図面の簡単な説明】

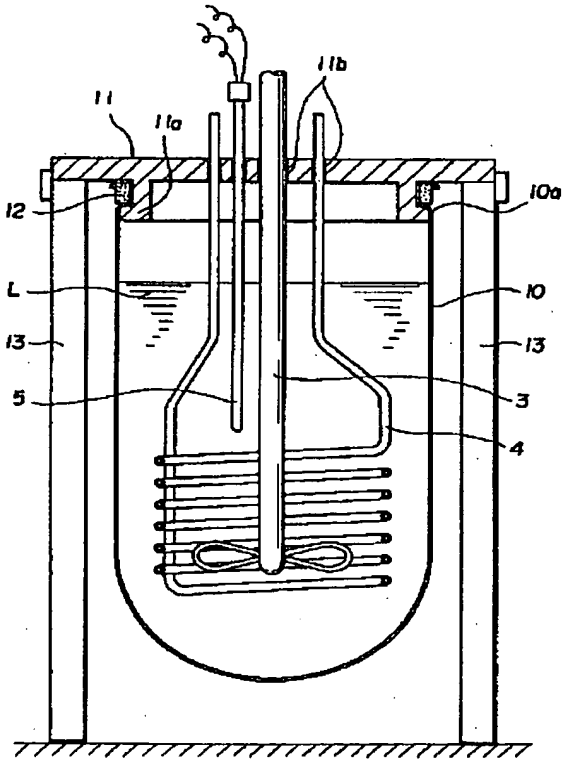
【図１】本発明に係る培養槽の縦断面図である。

【図２】従来の培養槽の縦断面図である。

【符号の説明】

３　　撹拌具
４　　多孔質通気管
５　　溶存気体検出装置
１０　　培養袋
１０ａ　開放部
１１　　蓋体
１１ｂ　貫通孔
１３　　支持部材
Ｌ　　培養液

【図１】



【図２】